Transom Rebuild How-To

This tutorial will focus specifically on the most common type of transom job; how to replace/rebuild a plywood cored transom. We will show step by step the entire process using materials and techniques proven over many successful rebuilds. Following this guide will result in a rebuilt transom that is stronger and will last much longer than the original.

The boat featured in this rebuild is a 1984 Grady White. The boat's owner is a local customer who purchased all his materials through our store and followed all our technical advice, making this rebuild a great basis for the tutorial. The entire rebuild was **documented by the owner at our message board**. (This is a link to the rebuild thread). We provide technical help for all sorts of **repair/rebuild projects through our forum**. To receive the technical support for your project, please register and **read this thread detailing what information we need** to be able to help you. All materials in this rebuild were purchased through boatbuildercentral.com.

Before beginning demolition: Take measurements of all the parts around the transom; fiberglass thickness of outside skin, plywood thickness, inside transom skin thickness, stringer location, string thickness, etc. You will want these measurements as a reference later. Before removing anything structural you must have the hull well supported. Removing stringers and/or a transom without properly supporting the hull can result in a deformed or "oil canned" hull. The best support is a bunk trailer with additional blocks under the keel and transom. If you have questions on supporting the hull, please ask them on the forum.

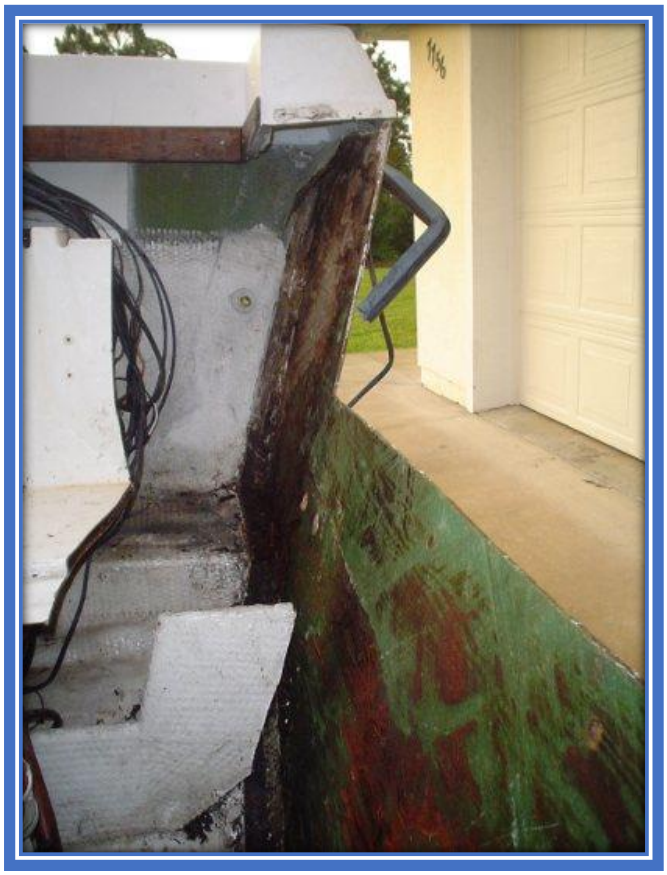
In our example boat, you can see the transom core is soaked and it has lost nearly all its stiffness. The first step is to gain access to the transom. In the case of the example boat, there was a motor well bulkhead that made a natural place to cut through the liner/sole for access, but each boat will be a little different. The deck cap in this model did not need to be removed to be able to access the very top of the transom. If the boat had a single motor well and wide deck cap, a cut through the cap (or removal of cap) would have probably been necessary to reach the entire inside of the transom.

The next step in the rebuild is the removal of the old plywood core and inside fiberglass transom skin. You will need access to the entire transom plus at least 12" up the side and bottom of the boat. Depending on the boat's construction, you may be able to remove the deck cap, or you may need to make a cut through the

deck and sole. If you post pictures at our forum we can advise you on the best places to make these cuts to avoid time consuming fairing work (hiding seams).

Now you must completely remove the old plywood core. A reciprocating demo saw, grinder, hammer and chisel are good to have. If you have an air compressor, a small air hammer is a good investment. Be careful to not inflict too much damage to the outside fiberglass skin. If you do damage the outside skin it is not a big deal, but you will want to reinforce it with a layer of fiberglass before the new core is installed (more on that later).

You can see in the pictures below that the liner is cut away and the old plywood has been removed. Any bonding putty in the corners should be ground out. The new core needs to be bonded directly to the old outside skin. **NOTE:** We recommend the last 8"-10" of the stringers be completely removed, in this case the stringer was not cut back far enough to be ideal.



Once the old plywood and putty are removed, make a template of the transom using cardboard or cheap plywood (or anything else handy). You will use this template to cut your transom core and to draw/cut the wide fiberglass pieces that will make up the new inside transom skin.

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Installing the new core: your new plywood core should be the same total thickness as the original plywood. If you are changing anything about the design of the transom (higher engine mounts, enclosed transom, bracket, etc...) you may need to adjust the thickness of the core. Post details on the forum and we can help with this. Most powerboat transoms are made by laminating multiple layers of 1/2" or 3/4" plywood. It is not a problem to make a very thick transom by using epoxy to laminate many layers together, in fact it is quite the opposite. The new core can be either made in one piece, then bonded into the hull, or you may laminate one layer at a time into the hull. It is generally easier to laminate the core outside the boat and bond it into the hull once, but on very large transoms this may not be possible due to weight and difficultly in handling.

To laminate two pieces of plywood, first coat the faces of the plywood that will be glued together with un-thickened (neat) epoxy resin. This is a thin coat of epoxy, just enough to let the face of the wood soak up a little epoxy. While this epoxy is wet, mix a batch of epoxy glue. Epoxy glue is made from same epoxy with wood flour mixed in to reach a "ketchup" consistency. Using a notched spreader, apply even amounts of epoxy glue to each plywood face. Now clamp the two layers together using weights, clamps, or dry wall screws (temporary, removed after glue cures). Do not apply too much pressure! Epoxy is gap filling and extremely strong, you want the epoxy to remain between the plywood layers. Once the epoxy begins to squeeze out the sides evenly it is time to stop the clamping pressure

In the example boat the customer decided to laminate each layer one by one into the hull. The method is the same as if the laminations were made outside the boat: apply epoxy, then glue, then clamp.
In the picture below, you can see the first layer clamped into place (plywood is Meranti BS1088).

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After 3 layers total, we have the total core thickness epoxied into place.

The gaps between your new core and the sides/bottom of the hull will need to be filled with epoxy putty. The epoxy putty is made from the very same epoxy and the wood flour glue, but to make the filling and fillet putty you will want to add a little silica to make the putty easier to spread. After filling the gap, using the same putty, you will make a fillet all around the joint between the core and the hull. A fillet is a radius of putty that allows fiberglass to make a turn around an angle.

Here is the core with a fillet of epoxy putty all around (**Note:** the stringer should have been cut off at least 10" forward of the transom).

The next step is the tabbing of the transom core to the sides and bottom of the hull. The tabbing comes before the wide cloth of the new inside skin. For tabbing we use 12 oz Biaxial fiberglass tape. This tape is stronger than traditional woven tape due in part to its fiber orientation (45/45 degrees). It is also very easy to work with, wets out easily, and is epoxy compatible. We use multiple layers of the 12 oz tape; the amount will depend on the boat. We highly recommend doing the fillet and glass tabbing all in one work session, this is called working "wet on wet" and results in a much better lamination quality with less clean up and no grinding/sanding between layers!

Here is the core tabbed into the hull (again, the stringer should not have been tabbed back in yet as in this picture).

Now you will laminate your new inside transom fiberglass skin. The lamination schedule for each boat will vary, but in general, you will be looking to build up to the original thickness. The new inside skin will be much stronger, and better bonded to the core because of the superior materials (epoxy and biaxial fiberglass). To build up the inside skin you will need multiple layers of wide biaxial cloth, normally 50" wide. Each layer of the inside skin will overlap to the sides and bottom, first layer at about 6", then each subsequent layer another 2". Each layer is a little wider than the one it is being laid over. Now is when the transom template comes in handy, you use it trace out your inside skin pieces A little more about Biaxial Cloth: Biaxial Cloth is available in several weights. In general, the lighter the cloth the easier it will be to wet out and work with, but this will also mean many more layers to build up a desired thickness. The heaviest biaxial cloth we normally recommend for amateurs is 1708. 1708 consists of 17 oz of biaxial cloth with an 8 oz matt stitched to the back side for a total of 25 oz. It is important to only use biaxial/matt which is epoxy compatible. Not all cloths are epoxy compatible! Read more on wetting out 1708 if this is your first experience.

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Below is a picture of the Grady White transom with the new biaxial glass inside skin. Notice the overlaps up the side and bottom, also wrapped over the top of the motor cut out.

Your transom is now structurally complete. All that remains is to tie your transom into the stringers using stringer splices. (This assumes you are not also replacing the stringers of your boat). Epoxy glue into place wood stringer extensions which match the thickness of the core of the stringers. Grind back at a beveled edge the fiberglass covering of the existing stringer stub. Repeat the epoxy fillet and tabbing procedure used to tab in the transom core, being sure to overlap the old stringer by at least 6". The stringer is also tabbed to the new inside transom skin. Use the same 12 oz biaxial tape for the stringer tabbing. After the tabbing, you will wrap the entire stringer spice (overlapping up the old stringer) with enough heavy biaxial cloth to build up to at least the same thickness as the skin of the original stringer.

The boat is now ready to be put back together. While the structural aspects of the rebuild are the same from boat to boat: marine plywood, epoxy, tabbing, cloth, etc..., each boat design will be a little different in how it should be taken apart and put back together. You do not necessarily have to follow the same procedure as the example in this tutorial. In the case of our example boat, the owner simply epoxied into place the cut-out portion of his motor well. Butt blocks epoxied to the underside of the parts were used to make a lip for gluing the two edges of fiberglass. Using epoxy fairing compound the joint was then faired out smooth.

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Many of our customers use the rebuild as an opportunity to completely change the layout of their transom; single to twin, closed transom for bracket, raised transom for longer shaft engine. We used the Grady White as the example for our tutorial because of the quality of work, quality of materials, and it is a good representation of a common rebuild. You can read through many rebuild threads in the **repair section of our message board**. To get specific technical support for your boat, register for the forum and start a new thread for your project. We will help walk you through the process. This is a free service to customers who get their materials from our store. We keep in stock, and ship within one day, all the materials one needs for a transom job. Our prices are extremely competitive and quality is second to none.